

**Claims**

- 5 1) A product taken from the group consisting of a foam,  
an emulsion, a foamed emulsion, a dispersed emulsion  
and a foamed dispersion, wherein the interface water-  
air, water-oil or water-solid comprises a complex  
formed instantaneously at said interface by the  
10 mixture of at least a protein (or peptide) and at  
least a polysaccharide oppositely charged or the  
mixture of two proteins oppositely charged, said  
product being in a pH range within which the  
electrostatic interaction between both compounds  
15 oppositely charged occurs and wherein the total amount  
of protein and polysaccharide is comprised between  
0.01 and 5 % in weight.
- 20 2) A product according to claim 1, wherein the protein is  
taken from the group consisting of a protein from  
milk, soy, egg, meat, fish and plant.
- 25 3) A product according to claim 2, wherein the protein is  
taken from the group consisting of  $\beta$ -lactoglobulin ,  
whey protein, soy protein, egg white protein and wheat  
protein.
- 30 4) A product according to any of claims 1 to 3, wherein  
the polysaccharide is taken from the group consisting  
of gums, hydrocolloids and stabilizers.
- 5) A product according to claim 4, wherein the  
polysaccharide is acacia gum , arabinogalactans, Ax

rye, Ax wheat, carboxy-methyl-cellulose, chitosan, xanthan gum,  $\beta$ -glucan.

- 5 6) A product according to any of claims 1 to 5, wherein the ratio protein to polysaccharide or protein to protein is comprised between 1:20 and 20:1.
- 10 7) The use of the product according to any of claims 1 to 6, in the ice-cream, low-fat mayonnaise, culinary, chocolate, dessert, wafers, sponge cakes, dairy and petfood area, wherein said product is used in an amount comprised between 10 and 100 % of the final product in weight.
- 15 8) The use of the product according to any of claims 1 to 6 in the cosmetic and perfume area, wherein said product is used in an amount comprised between 10 and 100 % of the final product in weight.
- 20 9) A process for the preparation of a foam product, wherein a solution or a bulk mass of the at least one protein and a solution or a bulk mass of the at least one polysaccharide or a solution or a bulk mass of one protein and another solution or a bulk mass of one protein is injected with the air in a bulk mass or
- 25 directly in the air.
- 30 10) A process for the preparation of a foam product, wherein a solution of at least one protein and a solution of at least one polysaccharide or a solution of one protein and another solution of one protein are mixed together in the presence of air.

- 11) A process for the preparation of an emulsion, wherein a first part of an emulsion is stabilised with the at least one protein, a second part of an emulsion is stabilised with the at least one polysaccharide or a second protein, and both emulsions are mixed together.
- 12) A process for the preparation of a foamed emulsion, wherein a bulk product is prepared, a first part of an emulsion is stabilised with at least one protein, a second part of an emulsion is stabilised with at least one polysaccharide or a second protein, both emulsions are mixed together and diluted in the bulk product, then a new solution of the protein with a new solution of the polysaccharide are injected with air in the bulk product to form the foamed bulk product.
- 13) A process for the preparation of a dispersed emulsion, wherein a first part of an emulsion is stabilised with at least one protein, a second part of an emulsion is stabilised with the at least one polysaccharide or a second protein, and both emulsions are mixed together, the obtained final emulsion being then mixed with a base comprising particles.
- 14) A process for the preparation of a foamed dispersion, wherein a solution of the at least one protein and a solution of the at least one polysaccharide or a solution of one protein and another solution of one protein is injected with the air in a bulk of dispersed particles.
- 15) A device for carrying out the process according to any of claims 9 to 14, which comprises on a frame :

- a first pipe for the arrival of an emulsion or dispersion with a protein
  - a second pipe for the arrival of the gas
  - a third pipe for the arrival of an emulsion or
- 5 dispersion with a polysaccharide,

these three pipes arriving on a main channel, being disposed perpendicular and staggered along said main channel, the first pipe forming the central pipe on the main channel, the second pipe forming the intermediate

10 pipe on the main channel and the third pipe forming the external pipe on the main channel and wherein the outlet on the main channel of the central and the intermediate pipe are staggered.